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Patent Number : 0751165/EP-A3
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Title : High strength, fast absorbing, melt processable, glycolide-rich, poly(glycolide-co-p-dioxanone) copolymers
Inventor(s) : Bezwada, Rao S. Jamiolkowski, Dennis D. Cooper, Kevin Newman, Hugh D., Jr.
Abstract : Absorbable, segmented copolymers of aliphatic polyesters based on lactone monomers glycolide, and p-dioxanone are described. The segmented copolymers exhibit a broad range of properties, especially high strength and stiffness, and fast absorption rates and breaking strength retention (BSR) profiles, useful in a variety of medical devices. Most importantly, for suture applications where Vicryl.-like polyglcolide- polylactide sutures with excellent tensile properties, but shorter BSR profiles than Vicryl. are needed. The copolymers of the present invention have such properties, making them useful in plastic surgery where faster absorption times would lead to less tissue scarring.
Exemplary Claim(s) : An absorbable, biocompatible segmented copolymer comprising:; a major component comprising about 30 mole percent to about 95 mole percent of repeating units of glycolide; and,; a minor component comprising about 70 mole percent to about 5 mole percent of repeating units of p-dioxanone.; The segmented copolymer of claim 1 wherein the major component comprises about 30 mole percent to about 90 mole percent of repeating units of glycolide, and wherein the minor component comprises about 70 mole percent to about 10 mole percent of repeating units of p-dioxanone.; The segmented copolymer of claim 1 wherein the repeating units of glycolide comprise about 30 mole percent to about 50 mole percent of the copolymer, and wherein the repeating units of p-dioxanone comprise about 50 mole percent to about 70 mole percent of the copolymer.; The segmented copolymer of any preceding claim wherein the copolymer has a molecular weight such that the inherent viscosity is from about 0.6 dL/g to about 3.0 dL/g as measured in HFIP at 25.C at a concentration of 0.1 g/dL.; An absorbable device for use in medical applications, the medical device comprising a segmented copolymer according to any preceding claim.; A process for producing a segmented copolymer of p-dioxanone and glycolide, said process comprising heating a mixture of p-dioxanone monomer, p-dioxanone homopolymer, and glycolide monomer, to a sufficient temperature for a period of time to effectively produce a segmented copolymer comprising a major component comprising about 30 mole percent to about 95 mole percent of repeating units of glycolide and a minor component comprising about 70 mole percent to about 5 mole percent of repeating units of p-dioxanone.; A process for producing a segmented copolymer comprising the steps of:

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